

1

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WHIPPING AND POWDERED SHORTENING COMPOSITIONS

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This invention relates to an improved edible whipping compound which will not break down upon prolonged whipping, e.g., after 14 to 15 minutes of whipping, and which does not need to be refrigerated following mixing and before being whipped. That is, the product of this invention whips up immediately and will remain stable in whipped form for several hours at room temperature and for longer times if the whipped product is refrigerated as in the usual mechanical refrigerator.

EXAMPLE 1

In preparing this improved product, about 47.5% of hydrogenated cottonseed oil, by weight of the finished dry mix, is mixed with about 2½% of a mixture of mono and di-glycerides by weight of the finished dry mix to enhance the whipping effect. To this mixture is added about 10% of glycerol lactomonopalmitate which is the principal whipping agent. There is also added about 30% cane sugar by weight of the finished product as a sweetener. About 10% sodium caseinate by weight of the finished product is added to increase the whipping effect.

The above mixture is added to water in amount to give a 55% solids content, and stirred therein, whereupon we pasteurized the fluid mix at 145° F. for 30 minutes. The pasteurized liquid mixture is now homogenized at 550 p.s.i. at the pasteurization temperature, and thereafter is spray-dried through a relatively large size orifice and a low pressure such as will give a powder having a particle size of about 125 microns. The powdered product is now packaged for sale as desired.

This powder is a very excellent whipping material, of good keeping qualities and useful to form a whipped body as desired in many food products, including custards, ice creams, puddings, toppings, etc., and also may be used as an instant ice cream base.

Additional sugar or flavors are sometimes included in the powder up to about 20% of the total weight of the mixture to give any desired sweetness or flavor.

EXAMPLE 2

This example was like Example 1 except that we used propylene glycol monostearate instead of the palmitate.

EXAMPLE 3

This example was like Example 1 except instead of the palmitate we used glycerol lacto oleate.

EXAMPLE 4

This example was like Examples 1, 2 and 3 except that we added about 1% of lecithin based on the weight of the finished product, as an emulsifier, the same being added to the mix prior to the pasteurization and subsequent steps.

EXAMPLE 5

In this example, we followed the previous examples but before pasteurization we added to the mix a small amount of a stabilizer to increase the stiffness of the whip and used about 0.5% by weight of the finished product of sodium alginate.

EXAMPLE 6

This example was the same as the previous ones except that we included about 0.04% potassium acid tartrate to stiffen the whip and add a tangy flavor.

Other hydrogenated fats may be employed such as soy-

2

bean oil and, in fact, any bland edible oil with a wide range of melting points, e.g., from 72° F. to 130° F. If the melting point is too high, there is imparted an objectionable greasy characteristic. The melting point of the edible hydrogenated fat should thus be about 75° F. to 100° F. so as not to form a film on the pallet of the consumer.

About 40% to 75% of the oil is employed.

The mono- and di-glycerides are standard commercial products, composed of about 40 to 42% mono-, and about 43 to 45% di-glycerides, with the remainder tri-glycerides. This product which increases the whipping effect is used in amount of about 0.0 to 10% by weight of the finished dry mix. In some cases, it may be omitted.

The principal whipping agents as described in the foregoing examples, namely the glycerol lacto monopalmitate, propylene glycol monostearate and glycerol lacto oleate, or mixtures of these agents, are used in amount of about 0.5 to 15% by weight of the finished dry mix.

Instead of cane sugar, beet sugar or any form of sucrose such as corn sugar or mixtures of these sweeteners are used. The sugar decreases the whipping effect and is used only in amount desired to sweeten. About 5 to 35% by weight of the finished dry mix is used, as higher amounts make the product difficult to dry. Other sweetening agents can be used if desired.

The lecithin is optional. It is employed as recited in Example 4 as an emulsifier, is a commercial lecithin, and is used in amount of about .25 to 1.5% of the finished dry mix.

Instead of sodium caseinate, soy protein or non-fat milk solids or skim milk is employed to increase the whipping effect. About 1 to 15% by weight of the finished dry mix is used.

The use of a stabilizer is optional, and in lieu of sodium alginate, carrageenin, gum tragacanth, gum acacia, gum karaya, and locust bean are employed. About .02 to 1.0% is used preferably about .2 to .5% of the weight of the finished dry mix. These stabilizers appear to increase the stiffness of the whip.

Instead of potassium acid tartrate, we use about 1% tetrasodium pyrophosphate, as well as tartaric acid and citric acid in amount of about .5%. About 0.02% to 1% of these stiffening and flavor-imparting ingredients are used, the amount being such that it will not bring the pH below 5.0 of the liquid mix. These ingredients are optional.

Vanilla or other desired flavor is sometimes added to the liquid mix before pasteurization. Also, food colors, if desired, are added to the liquid mix before pasteurization, such as edible colors to give a yellowish or cream color, e.g. beta carotene.

The liquid mix to which all the ingredients are added before pasteurization has a range of 40 to 60% solids content. Sweet skim milk may be used instead of water but is not preferred.

Pasteurization of the liquid mix should not be at so high a temperature or for too long as to denature the casein or protein. A temperature of about 140° F. to 165° F. for 30 to 25 minutes is adequate depending on the temperatures.

Homogenization is carried out at low pressures and at about the pasteurization temperature, e.g., 100 to 800 p.s.i. and preferably at about 500 to 600 p.s.i.

The spray-drying is carried out in commercial apparatus having as large an orifice as possible to give a large particle size powder of about 75 to 200 microns, preferably 125 to 150 microns.

In using the products of this invention, about one-half cup of milk or water is placed in a "Mixmaster" or other mixing machine bowl and about 57 grams (2 ounces) of the powder are stirred slowly into the liquid in the bowl